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### REMARKS

In the specification, the paragraph beginning on page 7, line 20 has been amended to correct minor editorial problems.

Claims 1-63 were presented for examination. Claims 1-63 were rejected. Claims 1, 5, 9, 12, 15-18, 20, 22, 24, 30, 34, 40, 46, 48-58, 62 and 63 have been amended.

### Rejections Under 35 U.S.C. § 112

Claims 54, 56 and 57 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 54 and 56 have been amended to provide antecedent basis for the indicated subject matter. Applicant believes that claims 54 and 56 are no longer indefinite and requests that the Examiner withdraw his rejection to claims 54 and 56.

Applicant respectfully disagrees that "said internal pin assignments" lacks clear antecedent basis in claim 57. The phrase "internal pin assignments" is recited on line 7 of claim 57 and provides for the clear antecedent basis for the phrase "said internal pin assignments" on line 9 and 10. Therefore, Applicant requests that the Examiner withdraw his rejection to claim 57.

### Rejections Under 35 U.S.C. § 102(b)

Claims 1-4, 15-29 and 46-57 were rejected under 35 U.S.C. § 102(b) as being anticipated by Doyle. Applicant respectfully traverses.

Claim 1, as amended, recites, in part, a computer system for routing of information for

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memory devices comprised of a central processing unit, a memory module comprised of two memory banks of *substantially identical* memory chips to minimize cost of inventory and stocking and a system bus that receives information from the central processing unit that is mapped to a pattern for accessing the two separate memory banks.

Doyle also recites an apparatus for supporting memory devices. However, Doyle fails to disclose the use of substantially identical memory chips in its memory device. Instead, Doyle discloses using memory of various sizes (Col. 4, lines 1-2) and that "a variety of memory devices" can be used (Col. 4, line 9). Further, Doyle teaches away from have identical memory chips by stating an advantage of Doyle is that it supports "different sizes and configurations of random access memory in a single DIMM socket" (Col. 2, lines 30-32). Therefore, Applicant believes that claim 1 is not anticipated by Doyle and request the Examiner withdraw his rejection to claim 1.

Independent claims 15-18, 20, 22, and 46 as amended, also recite memory banks of identical memory chips as called for in claim 1. Therefore, for the same reasons discussed above, Applicant believes claims 15-18, 20, 22, and 46 are also not anticipated by Doyle, and requests that the Examiner withdraw his rejection of claims 15-18, 20, 22, and 46.

Claims 2-4, 19, 21 23-29, and 47 depend on independent claims 1, 18, 20, 22, and 46 and are patentable for the same reasons as the independent claims from which they depend. Additionally, these dependent claims recite further limitations not shown or suggested by the prior art. Therefore, Applicant believes claims 2-4, 19, 21 23-29, and 47 are also not anticipated by Doyle, and requests that the Examiner withdraw his rejection of claims 2-4, 19, 21 23-29, and 47.

Claim 48, as amended, recites in part an integrated circuit memory chip comprising a circuit package that contains within it two multiplexers and a plurality of pins from a memory chip.

As mentioned above, Doyle recites an apparatus for supporting memory devices. However, Doyle fails to provide for multiplexers contained within an integrated circuit memory

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chip. Doyle discloses "addresses that are multiplexed externally" or multiplexed internal to the microprocessor (Col. 3, lines 54-57). Therefore, Applicant believes that claim 48 is not anticipated by Doyle and request the Examiner withdraw his rejection to claim 48.

Independent claims 53 and 57 also recite multiplexers contained within the integrated circuit memory chip as called for in claim 48. Therefore, for the same reasons discussed above, Applicant believes claims 53 and 57 are also not anticipated by Doyle, and requests that the Examiner withdraw his rejection of claims 53 and 57.

Claims 49-52 and 54 -56 depend on independent claims 48 and 53 and are patentable for the same reasons as the independent claims from which they depend. Additionally, these dependent claims recite further limitations not shown or suggested by the prior art. For example, claims 51 and 55 recite internal logic on the integrated circuit memory chip for receiving the control signal from the memory controller. In Doyle, the control signals are buffered and multiplexed between the microprocessor and the memory and, therefore, the logic is not internal to the memory itself as indicated in the claimed invention (Col. 4, lines 55-61). Applicant believes claims 49-52 and 54 -56 are also not anticipated by Doyle, and requests that the Examiner withdraw his rejection of claims 49-52, and 54 -56.

Rejections Under 35 U.S.C. § 103(a)

Claims 5, 30 and 58 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Doyle in view of well-known features of circuit packages, as further evidenced by Miller. Applicant respectfully traverses.

Claim 58, as amended, recites a memory module comprised of identical memory chips as well as reciting remap multiplexers that are contained within the circuit package of the memory chip.

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Doyle, as mentioned above, discloses an apparatus for supporting memory devices. However, Doyle fails to disclose identical memory chips as well as remap multiplexers contained within the circuit package of the memory chip itself.

Examiner admits Doyle fails to teach the use of pads and cites Miller. However, Miller fails to remedy the deficiencies of Doyle. Miller discloses memory banks comprising signal terminals that are conductive pads and that are on both sides of a circuit board. However, Miller also fails to disclose identical memory chips nor does Miller disclose remap multiplexers contained within the circuit package of the memory chips. Therefore, neither Doyle nor Miller disclose these limitations in the claimed invention.

Nor does the hypothetical combination of Doyle and Miller suggest or teach identical memory chips or remap multiplexers contained within the circuit package of the memory chips. At best, the hypothetical combination teaches memory devices with conductive pad terminals of varying sizes and shapes located on both sides of a substrate that has multiplexing performed external to the memory device. Because the hypothetical combination of Doyle and Miller does not suggest or teach all the limitations of the claimed invention, Applicant believes that claim 58 is patentable over the prior art and request the Examiner withdraw his rejection to claim 58.

Claims 5 and 30 depend from the independent claims 1 and 22 either directly or ultimately. These dependent claims are patentable for the same reasons as presented above with respect to the claims from which they depend. Further, the dependent claims also include additional limitations which distinguish them from the prior art. Therefore, Applicant asserts that claims 5 and 30 are also patentable over the prior art and requests that the Examiner withdraw his rejection thereof.

Claims 6-14, 31-45 and 59-63 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Doyle in view Miller. Applicant respectfully traverses.

Claims 6-14, 31-45 and 59-63 depend from the independent claims 1, 22 and 58 either directly or ultimately. These dependent claims are patentable for the same reasons as presented

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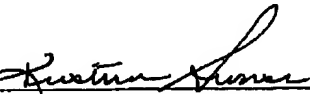
above with respect to the claims from which they depend. Further, the dependent claims also include additional limitations which distinguish them from the prior art. Therefore, Applicant asserts that claims 6-14, 31-45 and 59-63 are also patentable over the prior art and requests that the Examiner withdraw his rejection thereof.

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CONCLUSION

For the above reasons, the Applicant respectfully submits that the above claims represent allowable subject matter. The Examiner is encouraged to contact the undersigned to resolve efficiently any formal matters or to discuss any aspects of the application or of this response. Otherwise, early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,  
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